

FOREST INSECT AND DISEASE CONTROL  
STATE AND PRIVATE FORESTRY  
U. S. FOREST SERVICE  
OGDEN, UTAH

July 1975

Estimating the Effectiveness of the  
Spruce Beetle Trap Tree Program in  
Deer Valley, Dixie National Forest

By

Lawrence E. Stipe,  
Entomologist

## WORK PLAN

### Estimating the Effectiveness of the Spruce Beetle Trap Tree Program in Deer Valley, Dixie National Forest

#### INTRODUCTION

A spruce beetle trap tree program was initiated in conjunction with a timber sale in Deer Valley on the Dixie National Forest during 1974. The primary sale consisted of green and spruce beetle-killed and infested trees. Most of this material was cut and removed in 1974. The balance will be hauled to the mill in 1975. In addition to the removed material, approximately 550 large-diameter spruce were cut during the fall of 1974 for trap trees. These trees were not bucked nor limbed and will be left undisturbed until the 1975 spruce beetle flight is over.

The present timber sale and trap trees are located in the leave strips of old clearcut blocks cut in the late 1960's. Following the original sale, spruce beetle-caused mortality was recorded during aerial surveys for several years. Spruce beetle activity increased through 1971 and has since decreased to the present time. Most of the dead and infested material was salvaged during the present sale.

#### PURPOSE

The purpose of this evaluation is to measure the rate and degree the trap trees were successfully attacked, and if there is any reduction in the number of standing tree attacks.

#### AREA

Attack densities will be recorded from trap trees and their stumps within the current Deer Valley sale area. Green stand and standing attacks will be recorded in the sale area and adjacent stands.

#### TIMING

Trap tree attack sampling will begin the first week of August, 1975. After trap tree sampling is complete, all traps will be removed prior to September 30, 1975. Stand and standing attack data will be taken during the fall of 1975 through 1977.

## METHODS

### Trap Trees

Trap trees will be sampled following the 1975 flight to determine spruce beetle attack density. Of the 550 trap trees felled in 1974, 50 will be selected for sampling. Beginning at dbh, 2-6x12 inch plots will be established at 10 foot intervals on opposite sides of the bole. Sampling will continue up the bole until there are no attacks in either plot. The long axis of each plot will be oriented along the bole. The following data will be recorded for each trap tree:

1. Dbh.
2. Number of spruce beetle attacks.
3. Number of Ips attacks.
4. Diameter at last (top) plot.
5. Azimuth of trap tree (measured from base to top).
6. Degree of exposure to sun.

See appended data Form 1 and Figure 1.

### Stumps

Stumps will be those from which sampled trap trees were cut. A 6x12 inch plot will be established on top edge on the shaded (north) side of each stump. The long axis of the plot will be verticle. The following will be measured on each stump:

1. Diameter at top.
2. Number of spruce beetle attacks.
3. Number of Ips attacks.
4. Height (from ground on high side to cut).

See appended data Form 1 and Figure 1.

These data will be collected in 1975 and 1976 following the spring flight. In 1976 additional brood and emergence data will be taken from these stumps.

### Edge Blowdown

All windthrown trees within one chain of the edge of each clearcut block of the original sale will be recorded. The length of the clear-cut perimeter will be measured for each block. Trees will be recorded by diameter and examined for spruce beetle activity. See appended data Form 2.

3.

### Standing Tree Attacks

A fall survey will be conducted during 1975 through 1977 to determine the number of standing green tree attacks per acre in and adjacent to the sale area. Thirty two or more permanent strip plots ( $\frac{1}{2}$ x10 chains) will be established to record new attacks. Variable radius plots will be used to record green stand data. See appended data Form 3.

### ANALYSIS

Analysis will be made using standard statistical procedures. Trees per acre from the strip and variable plot tallies will be computed using existing computer programs.

### PERSONNEL AND EQUIPMENT

Personnel and equipment will be provided by Insect and Disease Control, State And Private Forestry, Ogden, Utah.

## APPENDIX

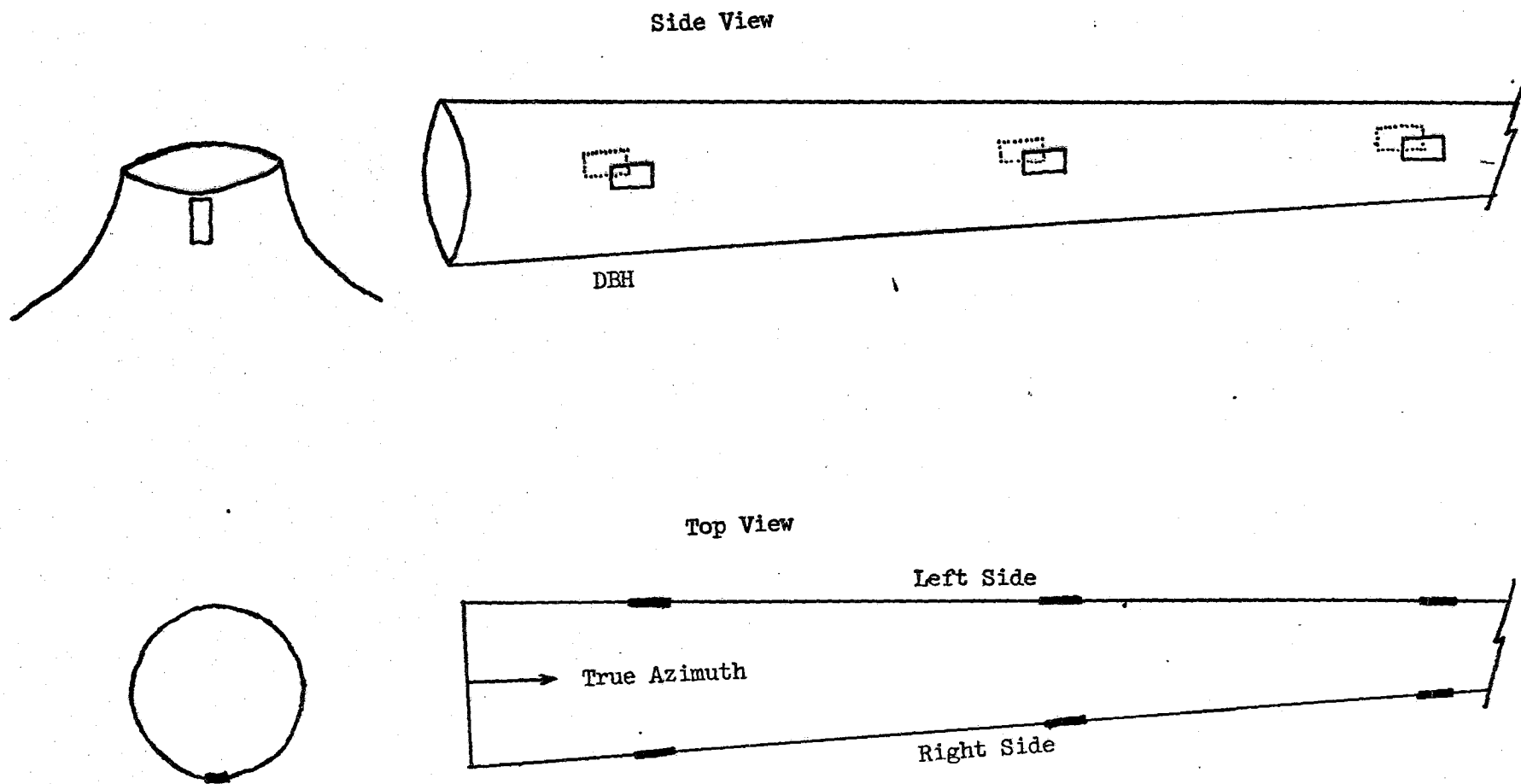


Figure 1. Plot layout on trap tree and stump.

Form #1

## SPRUCE BEETLE ATTACK DATA

5230

Tree # \_\_\_\_\_ DBH \_\_\_\_\_ Ht. \_\_\_\_\_ Az. Fell \_\_\_\_\_ Year Cut \_\_\_\_\_ Exp. \_\_\_\_\_

Date \_\_\_\_\_ Area \_\_\_\_\_ Block # \_\_\_\_\_ Examiners \_\_\_\_\_

	Left 6x12 Sample			Right 6x12 Sample			Stump 6x12 Sample	
Ht.	SBA	IA	Remarks	SBA	IA	Remarks	Top Dia.	
DBH							Height	
+10							SBA	
+20							IA	
+30							Remarks	
+40								
+50								
+60								
+70								
+80								
+90								
+100								
Dia. Last Sample								

SBA=Spruce Beetle Attack ; IA=Ips Attack

Form #2                      EDGE BLOW DOWN TALLY

5230

[illegible]

Perimeter Length \_\_\_\_\_ Examiners \_\_\_\_\_

[illegible]



Form #3

TREND SURVEY

Forest \_\_\_\_\_ Date \_\_\_\_\_ Crew \_\_\_\_\_ Plot \_\_\_\_\_ of \_\_\_\_\_ Plots  
 Azimuth \_\_\_\_\_ Distance \_\_\_\_\_ Chains. Enter tallies thus: 21 7

			DBH																							
			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			
Fixed ( )	BAF ( )	LPP	Live																							
			New																							
			Old																							
			Snag																							
		Other	DF																							
			SAF																							
			SP																							
	LPP	Live																								
		New																								
		Old																								
		Snag																								
		DF																								
		SAF																								
		SP																								
	DBH			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		

Remarks: